Remarks

Claims 1 through 15 remain in the application. The claims are resubmitted with arguments in support of the express limitations that particularly and patentably define the invention over the cited prior art references. The application is now considered in condition for allowance as discussed in greater detail below.

Amendments have been made to the written description to correct obvious misspellings and grammatical errors appearing in the description. The changes do not add substantive revisions and are fully supported by the original disclosure. Accordingly, the amendments do not add new matter to the application.

The Examiner rejected claims 1-15 as anticipated by Romzek. The Examiner argued that express limitations of the claims are taught at cited portions of the patent. However, the express limitations of the claims are not supported by the cited excerpts or other teachings of the patent, as discussed in greater detail below. Accordingly, the reference does not provide a proper ground for rejection under 35 U.S.C. § 102 nor does it provide a motivation or suggestion for a modification that would render the claimed invention obvious.

The cited patent to Romzek discloses a system and a method of diagnosing a component failure in an internal combustion engine having exhaust gas recirculation and a variable geometry turbocharger. Contrary to the Examiner's argument, the system of Romzek does not determine a condition at which an intake manifold temperature is below an intake manifold critical temperature at column 4, lines 12-43. That portion of the patent discusses a controller "to determine the various mass flow rates throughout the exhaust system" including the EGR system and flow through the compressor. Neither the cited portion or other written description provided by Romzek discuss determining a critical manifold temperature at which condensation would occur or determining its relation to an intake manifold temperature. Similarly, the abstract of the patent fails to discuss intake manifold temperature and fails to teach any determination of an intake manifold critical temperature at which

condensation occurs. In addition, the claim limitation relating to predicting the value of at least one of intake manifold temperature and intake manifold pressure if the engine were operated in EGR mode is not supported by the Figure 3 of Romzek or the corresponding written description in column 7, lines 54 through column 8 line 10. The written description of the patent describes boost pressure ranges and does not describe any relationship to intake manifold temperature or determination of a critical temperature at which condensation would occur. Accordingly, there is no teaching or suggestion of predicting an EGR mode value from data acquired during boost mode operation.

Likewise, the Examiner's argument that calculating an intake manifold critical temperature as a function of a predicting step previously recited in the claim finds no support in the cited excerpt of the patent. In particular, at column 5, lines 34-67, the description of flow values, air/fuel ratio and chemical composition do not teach or suggest any predicting or calculating temperatures, and no determination of a critical temperature at which condensation may occur. Accordingly, reliance on this written description fails to support a novelty rejection under 35 U.S.C. § 102, and does not provide any motivation for an obviousness rejection under 35 U.S.C. § 103. Moreover, there is no switching to an exhaust gas recirculation mode as particularly recited in the claim. While Romzek talks about adjusting the flow through the exhaust gas recirculation portion of the system or in controlling the variable geometry turbine, there is no teaching or suggestion of switching in response to temperature comparisons as expressly recited in the claim. As a result, claim 1 and dependent claims 2-6 clearly and patentably define the present invention over Romzek.

Moreover, independent claim 7 recites instructions for predicting a value of at least one of intake manifold temperature and intake manifold pressure in EGR mode from a measurement taken in boost mode. Such prediction, including any correlation between a temperature in EGR operation having a relationship to a temperature occurring during boost mode operation, is not taught or suggested anywhere in the Romzek patent. Rather, the Romzek patent monitors flow rate or a boost pressure and does not establish any reliance upon or motivation to the skilled artisan to rely on temperatures, and calculations made therefrom.

The Examiner's reliance on Romzek as establishing computer readable storage media does not define the types of instructions particularly defined in the claim. Likewise, Romzek provides no support for instructions for calculating an intake manifold critical temperature in EGR mode as a function of a previously predicted value of temperature or pressure. Similarly, there is no support for instructions for switching to an exhaust gas recirculation mode when the predicted temperature in EGR mode exceeds a calculated intake manifold temperature for EGR mode. Accordingly, the reference fails to provide a proper ground for rejection under 35 U.S.C. § 102. Moreover, there is no teaching or suggestion nor any motivation to modify Romzek's reliance upon flow rates to refer to temperatures so as to provide a proper ground for rejection under 35 U.S.C. § 103. Dependent claims 8-11 are likewise considered allowable.

Moreover, claim 12 particularly defines a system for controlling re-entry to an exhaust gas recirculation operating mode from a boost mode operation. Moreover, the re-entry process involves predicting a value of either intake manifold temperature or pressure as a function of the measurements made in boost mode. Such a step is not taught or suggested by the teachings of Romzek as argued above with respect to the other claims. Likewise, Romzek fails to teach calculating an intake manifold critical temperature as a function of the predicted value. As a result, Romzek fails to teach switching to exhaust gas recirculation mode based on the prediction and calculations previously discussed. As a result, claim 12 and dependent claims 13-15 are likewise considered allowable under 35 U.S.C. § 102, and would not be obvious under 35 U.S.C. § 103.

Of the other references made of record by the Examiner, the patent to Rimnac et al. is perhaps the most pertinent in relation to controlling an internal combustion engine system that addresses the problem of reducing or eliminating condensation within an intake manifold. The Rimnac system does so by increasing charge temperature or recirculation flow temperature at the intake manifold in response to ambient conditions at the manifold. Moreover, while the control of Rimnac includes instructions for determining a dew point based on current ambient conditions and engine operating conditions, Rimnac merely teaches

comparing intake manifold temperature to the determined dew point. There is no teaching or suggestion of predicting a value of intake manifold temperature in EGR mode as a result of manifold pressure measurement or temperature measurements taken during boost mode operation. Rather, the means for doing so are taught only by Applicants in the present application. The reentry strategy to get back to EGR mode operation, where predicted values for intake temperature in EGR mode are determined as a result of measurements taken during boost mode, is not taught or suggested in the prior art of record. Likewise, there is no teaching of a determination of a critical IMT value as a function of a predicted temperature in EGR mode from boost pressure mode measurements, or a determination of IMT critical as a function of predictions of intake manifold pressure in EGR mode resulting from measurements made in boost mode. As a result, the claims particularly and patentably define the present invention over the control of Rimnac and the other references of record.

In view of the foregoing, Applicants respectfully submit that the present application is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

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